WWW.DAVIDCLARK.COM

USER MANUAL
Universal Gateway

U9921-GUV
(P/N: 40994G-01)

©2012 DAVID CLARK COMPANY INCORPORATED

Cautions and Warnings

READ AND SAVE THESE INSTRUCTIONS. Follow the instructions in this installation manual. These instructions must be followed to avoid damage to this product and associated equipment. Product operation and reliability depends on proper usage.

DO NOT INSTALL ANY DAVID CLARK COMPANY PRODUCT THAT APPEARS DAMAGED. Upon unpacking your David Clark product, inspect the contents for shipping damage. If damage is apparent, immediately file a claim with the carrier and notify your David Clark product supplier.

ELECTRICAL HAZARD - Disconnect electrical power when making any internal adjustments or repairs. All repairs should be performed by a representative or authorized agent of the David Clark Company.

STATIC HAZARD - Static electricity can damage components. Therefore, be sure to ground yourself before opening or installing components.

LI-POLYMER - This product is used with Li-Polymer batteries. Do not incinerate, disassemble, short circuit, or expose the battery to high temperatures. Battery must be disposed of properly in accordance with local regulations.

Overview

The U9921-GUV (40994G-01) Universal Gateway is a fixed-mounted wireless communication device that, when used in conjunction with one or more U9910-BSW (40992G-01) or U9912-BSW (40992G-02) Wireless Belt Stations, becomes part of a wireless intercom system. The U9921-GUV provides communication for up to four users as well as an interface to an existing wired intercom system. Up to four belt stations can be connected to one gateway.

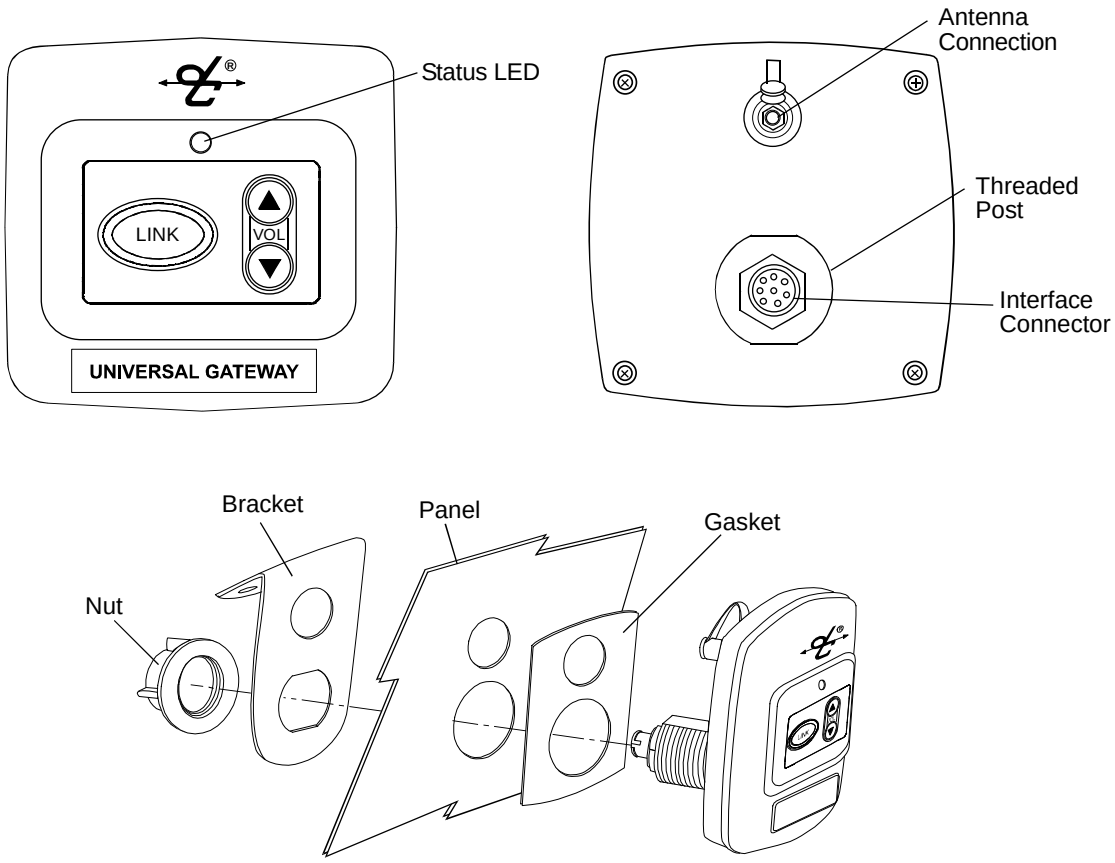

Figure 1: Overview of Gateway

Installation

Intercom Interface

The U9921-GUV is designed to add wireless capability to an existing wired intercom. Connection to the intercom is accomplished by connecting an interface cable to the interface connector of the U9921-GUV (see **Figure** 1). The following list contains David Clark intercom systems that have been tested to work with the U9921-GUV and the required cable assembly.

Table 1: Intercom Interface Cable Assemblies

David Clark Intercom	Cable Assembly Required
U3800 Vehicular Intercom System	C99-22MS (40935G-08)
U9800 Marine Intercom System	C99-20CX (40935G-07)
U9500 Marine Intercom System	C99-20LL (40935G-06)
U3400 Portable Intercom System U3100 Modular Intercom System	C99-20MS (40935G-05)

The U9921-GUV will detect the cable assemblies listed above and automatically make the necessary audio level adjustments for the corresponding intercom.

Mounting

The U9921-GUV may be flush mounted or surface mounted using the included gasket, nut, and bracket. See **Figure 1** for mounting suggestions.
Note: Bracket (P/N: 41045G-01) optional. Not used for flush mount applications. Bracket mounting configuration may be reversed for varying requirements (e.g., vehicle dash vs. ceiling-mount.)

See Appendix A for Mounting Templates.

Antenna

The U9921-GUV has an internal antenna. An external antenna may not be necessary but the antenna connector is provided for either the included whip antenna or an optional remote antenna kit (P/N: 40688G-93 for mag-mount, 40688G-96 for permanent install).

Choose an open, clear location for the remote antenna and route the coaxial cable away from any busy areas, preferably behind panels or in conduits.

This device has been designed to operate with the antennas listed below, and having a maximum gain of 3 dB. Antennas not included in this list or having a gain greater than 3 dB are strictly prohibited for use with this device. The required antenna impedance is 50 ohms.

Acceptable antennas for use with this product:

- Whip Antenna (P/N: 40688G-92)
- Remote Antenna Kit, Mag-Mount (P/N: 40688G-93)
- Remote Antenna Kit, Permanent (P/N: 40688G-96)

Linking

Before a belt station and a gateway can be connected, they must first be **linked**. As a security measure, the **close-link** feature requires devices to be in proximity of between 1 to 3 ft (0.3 to 0.9m) in order to successfully link. This ensures that the units are not inadvertently linked with other units on the premises.

Linking procedure:

1. Ensure units are within 1 to 3 ft (0.3 to 0.9m) of each other.
2. Simultaneously (within 1-2 sec) press and release the LINK button on the U9921-GUV and the LINK/PTT button on the belt station to link with.
3. Amber LED's will flash on both devices. A momentary red LED indicates a successful close-link.
4. Upon successful link the U9921-GUV will attempt to establish a connection with the belt station.
5. Upon successfully establishing connection the LED on the controller will flash a green pattern corresponding to the number of belt stations connected.

Tip:

Once linked, the devices will not need to be linked again unless they are purged (see ***Purging***).

Each belt station is able to be linked to only one gateway at a time. A gateway can have up to six belt stations linked and be connected to four of those six at one time.

Status Indications

The front panel has a multi-color LED in the center which serves as a status indication for the gateway. **Table 1** below lists these states.

Table 2: LED Status Indications

LED Color	Blink Rate	Status
Red	Solid	Initializing/power up
Red	Once	Connection Dropped
Red	Once	Connection Established
Red	Any	Low battery (approx. 1 hr remaining)
Orange	Slow	Idle/Disconnected
Orange	Fast	Link/Connection in Progress
Orange	Solid	PTT asserted
Green	Slow	Connected (pattern indicates number of belt stations connected)

Operation

Communication

All connected belt stations will be able to communicate with each other through the U9921-GUV while in range (and per the VOX settings on a VOX belt station.) Additionally, all belt station users will have communication over the intercom. If the intercom is so equipped, pressing the PTT button on a VOX belt station will allow the user to transmit over the system's two-way radio. Pressing the PTT overrides the VOX setting on a VOX belt station. Multiple VOX belt station users may PTT and thus speak over the two-way radio simultaneously. For more information consult the user manual for the belt station.

Tip:

Wireless users who are not pressing PTT while another wireless user is pressing PTT will not be heard on the wired intercom while the PTT remains pressed.

Intercom Level Adjustment

Audio levels can vary between intercoms, mainly due to the system level setting on the wired intercom. To compensate for this, the U9921-GUV has the ability to adjust its receive level from the intercom using the *Vol* keys (see **Figure 1**). Pressing these keys will increase or decrease the audio level coming from the wired intercom into the gateway. Perform this adjustment to obtain optimum performance.

Receive Level Adjustment Procedure

1. Connect at least one belt station to the U9921-GUV gateway and ensure sidetone is present (see belt station User Manual).
2. Begin speaking and slowly and repeatedly press the **Volume Up** key on the U9921-GUV gateway until you hear an echo of your own voice.
3. Continue speaking and press the **Volume Down** key until the echo stops.
4. You may wish to verify communication with someone hard-wired to the intercom.

Range

The range of a belt station and a gateway can be up to 300 ft (100m). If you are in an environment with metal or concrete walls, this range could be reduced. If the belt station enters into a "fringe" reception area, a brief sequence of three beeps will be heard in the headset. This is to serve as a warning of a possible disconnection if conditions are not improved. When possible, the user should attempt to regain light-of sight contact with the controller. When the belt station travels out of range of the gateway, a voice alert will indicate that the connection has been lost. To reconnect, simply move back into range and connection with the gateway will automatically be reestablished, also noted by a voice alert.

Purging

In some circumstances it may be necessary to “purge” the U9921-GUV of some of its linked belt stations. Typically purging is not necessary unless there are multiple gateways in the same vicinity and you wish to remove a belt station from this gateway and link to a different gateway. A gateway can link up to six belt stations where a belt station can be linked to only one gateway at a time.

Smart Purge

A *smart purge* is the purge method employed for the U9921-GUV, in which only unwanted links are removed from the gateway. When this procedure is complete, only belt stations that are connected to the gateway remain linked. All other belt station links will have been removed (see the belt station User Manual for the individual belt station purging procedure when remaining link purging may be necessary.)

Smart Purge procedure

1. Ensure the gateway is powered on and functioning.
2. Disconnect all belt stations to be purged (power off the belt stations).
3. Verify the number of green LED flashes on the gateway matches the number of belt stations to be kept linked.
4. Press and hold LINK button on the gateway for 30 seconds until LED quickly flashes red.
5. Release LINK button.

Troubleshooting

Table 3: Troubleshooting

Problem	Solution
Gateway will not turn on	Ensure correct interface cable is being used (Table 2)
Cannot link a belt station	Review *Registration* procedure Ensure units are within 1 to 3ft (0.3 to 0.9m) of each other Try a *Smart Purge*
Cannot speak over two-way radio	PTT not pressed Two-way radio not installed to system

Replacement Parts

- Interface cable assemblies:

David Clark Intercom	Cable Assembly Required
U3800 Vehicular Intercom System	C99-22MS (40935G-08)
U9800 Marine Intercom System	C99-20CX (40935G-07)
U9500 Marine Intercom System	C99-20LL (40935G-06)
U3400 Portable Intercom System U3100 Modular Intercom System	C99-20MS (40935G-05)

- Whip Antenna (P/N: 40688G-92)
- Remote Antenna Kit, Mag-Mount (P/N: 40688G-93)
- Remote Antenna Kit, Permanent (P/N: 40688G-96)
- Mounting Bracket Kit (P/N: 41045G-01)

Care and Maintenance

The U9921-GUV is not user serviceable. Do not attempt to open the enclosure. If this product requires service, please contact the David Clark Customer Service department:

- **Phone:** 800.298.6235
- **E-Mail:** serviceWWW@DavidClark.com
- **By Mail:** Customer Service
  David Clark Company
  360 Franklin Street
  Worcester, MA 01604

If necessary, the U9921-GUV may be wiped down with a mild soap and water mixture. Although it is a sealed device designed to withstand submersion in water to 1 meter, do not unnecessarily submerse this product in water.

Avoid storage of this product in direct sunlight or high temperature environments.

Specifications

Frequency Range	1920 MHz - 1930 MHz (U.S. and Canada)
Average RF Power Output	4 mW (100mW peak) (U.S. and Canada)
Range	300 ft (100m) line-of-sight (nominal)
Operating Temperature	-14°F to 113°F (-10°C to +45°C)
Storage Temperature	-4°F to 140°F (-20°C to +60°C)
Power Requirements	8 to 25VDC

FCC Part 15 Statement

RADIO AND TELEVISION INTERFERENCE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

You may also find helpful the following booklet, prepared by the FCC: "How to Identify and Resolve Radio-TV Interference Problems." This booklet is available from the U.S. Government Printing Office, Washington D.C. 20402.

* In order to maintain compliance with FCC regulations shielded cables must be used with this equipment. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio & television reception.

Industry Canada Statement

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Unauthorized Changes

Changes or modifications not expressly approved by David Clark Company, Inc. could void the users' authority to operate the equipment.

FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters (8 inches) between the radiator (antenna) and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Usage Restrictions

Due to the UPCS frequencies used, this product is licensed for operation only in the United States of America and Canada.

Appendix A: Mounting Templates

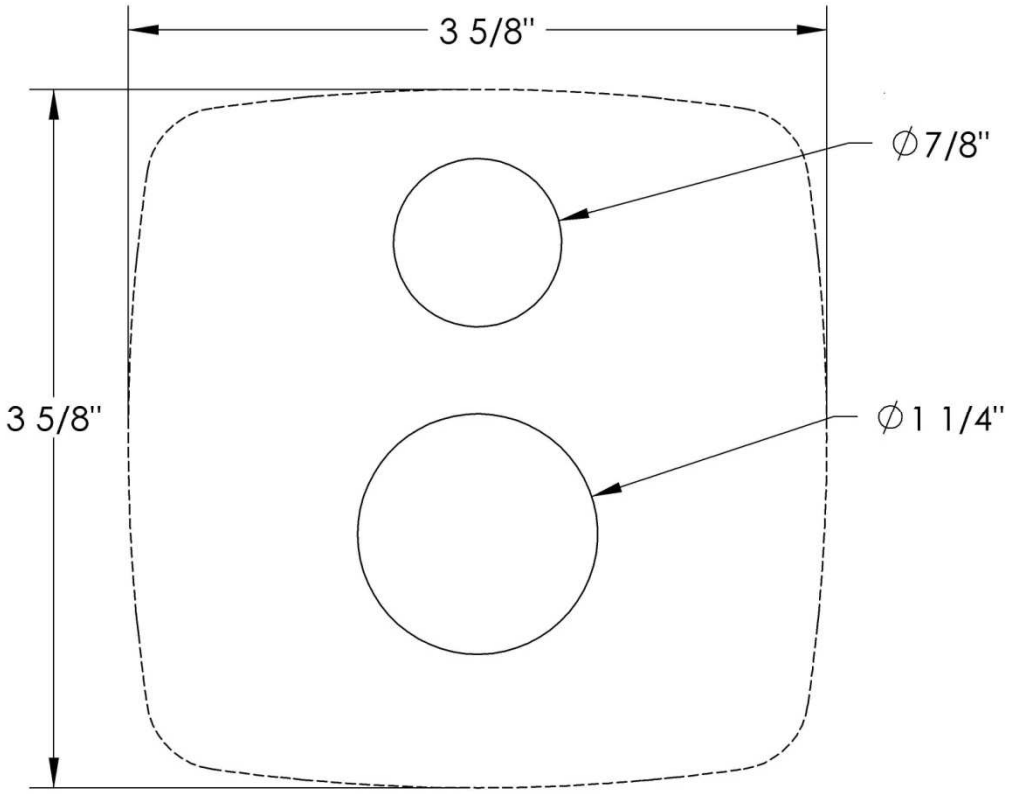

Figure A1: Flush Mount

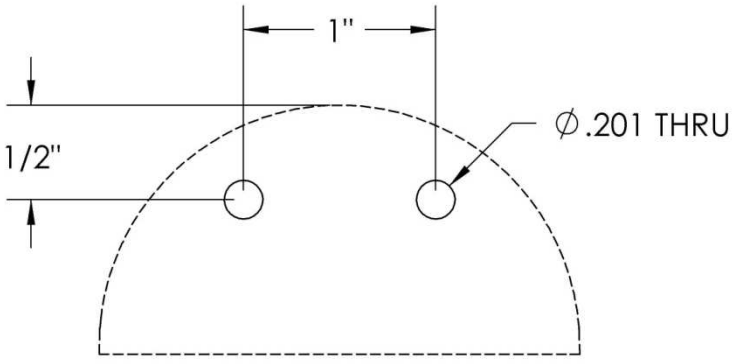

Figure A2: Bracket Mount – Optional (P/N: 41045G-01)